**3GPP TSG RAN WG2 #115-e** **R2-2109017**

**Electronic Meeting, August 16 – 27, 2021**

**Agenda Item:** 8.16.4

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**Title:** Summary Document for AI 8.16.4

**Document for:** Discussion and decision

# Introduction

R17 NPN is aiming at supporting the enhanced non-public network (eNPN) for NG-RAN resulting from the SA2 study on the enhanced support of NPN. One of RAN objective is to specify the corresponding RAN functionality where necessary as following:

* Support of IMS voice and emergency services for SNPN [RAN2]
  + Broadcasting of relevant parameters [RAN2]

In RAN2#113-e, some issues on IMS voice and emergency services for SNPN has been discussed in R2-2102309[1], and the following agreements have been reached:

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| * Extend the ims-EmergencySupport field to SNPN cells (it is FFS whether to reuse the existing IE or add new IEs indicating the support for IMS emergency). * For reserved cells specified in TS 38.304, all acceptable cells of an SNPN supporting emergency services are treated as suitable when the UE has an ongoing emergency call. * R17 UEs in SNPN Access Mode can camp on an acceptable SNPN cell supporting emergency services to obtain emergency services. * The voiceFallbackIndication field in RRCRelease and MobilityFromNRCommand is not applicable to SNPN cells. |

This document provides the summary of all the contributions submitted to 8.16.4 agenda item (NR Non-Public Network enhancements - Other) of RAN2#115-e meeting and address the open issues of this item. The following categorization has been used in this document.

* **Cat-a-Proposal:** a potential easy agreement, e.g. Proposals which could reach quick and straightforward agreement.
* **Cat-b-Proposal:** need further discussion. The proposal seems to have some support but need discussion.
* **Cat-c-Proposal:** candidate other than Cat-a and Cat-b which may be postponed for the moment. The issue may require other WG discussions or is contentious such that it is unlikely to converge at e-Meeting.

# Discussion

## 2.1 Emergency support indication for SNPN

### 2.1.1 Reuse legacy IE or define a new IE

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| **TDoc** | **Company** | **Proposals** |
| R2-2107031 | OPPO | Proposal 1: To enable limited service over SNPN, RAN2 to discuss and down select from the following two options:  Option1: Reuse the *ims-EmergencySupport* field defined for emergency service over PLMN and extend the field description to cover SNPN case.  Option2: Define a new parameter per cell to indicate whether the cell supports emergency service over SNPN.  Proposal 2: If Option2 is selected, the new parameter per cell to indicate whether the cell supports emergency service over SNPN should be included in SIB1 and upon UE receives this new parameter, UE AS should deliver it to the upper layer. |
| R2-2107325 | CATT | Proposal 1: Specify a new IE in SIB1 to indicate whether IMS emergency is supported in SNPN. |
| R2-2107441 | Intel | Proposal#2: New per cell RRC signaling is needed in SIB1 for indicating support of IMS emergency support for SNPN. A Rel-17 UE supporting only SNPN in limited service state will only initiate IMS emergency call in a cell indicating SNPN IMS emergency call |
| R2-2107348 | Qualcomm | Proposal 1: Introduce an indicator for the support for emergency services per SNPN in SIB1. This can be placed in *PLMN-IdentityInfoList.* |
| R2-2107752 | Samsung | Proposal 1: To support emergency call over IMS in SNPNs, RAN2 to introduce new flag in SIB1 to indicate the support for the emergency call feature by SNPNs in the cell. |
| R2-2107805 | vivo | Observation 1: If the existing IMS support IE is reused for SNPN, UE not operating in SNPN access mode (e.g. R15 UE) will initial unnecessary emergency registration via a SNPN only cell or RAN shared cell with only shared SNPNs support emergency service.  Observation 2: If the existing IMS support IE is reused for SNPN, UE operating in SNPN access mode (e.g. R17 UE) will initial unnecessary emergency registration via RAN shared cell with only shared PLMNs support emergency service.  Observation 3: The new IE(s) indicating the support for IMS emergency for SNPN can avoid that UE not operating in SNPN access mode (e.g. R15 UE) to initial unnecessary emergency registration via a SNPN only cell or RAN shared cell with only shared SNPNs support emergency service.  Observation 4: The new IE(s) indicating the support for IMS emergency for SNPN is introduced, UE not operating in SNPN access mode (e.g. R15 UE) to initial unnecessary emergency registration via a SNPN only cell or RAN shared cell with only shared SNPNs support emergency service.  Proposal 6: A new cell-specific indicator is introduced in SIB1 to indicate the support for IMS emergency service of SNPN(s). If absent, IMS emergency call is not supported by the SNPN(s) in the cell for UEs in limited service mode. |
| R2-2107956 | Nokia | Proposal 3.1: Introduce a new IE that indicates the support of IMS emergency per SNPN.  Proposal 3.2: The new indicator for IMS emergency support in SNPN is included in SIB1. |
| R2-2108048 | ZTE | Proposal 3: Introduce new IMS Emergency Support Indicator for the SNPN in the system Information. |
| R2-2108256 | Ericsson | Proposal 1: Introduce a new field indicating support for IMS Emergency for SNPNs. For network sharing scenarios each SNPN has a separate indication. Signalling details are FFS. |
| R2-2108499 | CMCC | Proposal 2: It is proposed to add a new IE inside NPN-IdentityList-r16 of SIB1, which indicates that the SNPN supports Emergency Services over NG-RAN for UEs in limited service state. |
| R2-2108614 | Huawei, HiSilicon | Proposal 1: Introduce a new field/IE to indicate the support of IMS emergency service for SNPN (i.e. not reusing the existing *ims-EmergencySupport* field in SIB1 which only applies to PLMN). |

*Rapporteur summary:*

Two basic approaches are depicted in the proposals submitted to this meeting:

**Option1:** Reuse the legacy IE ims-EmergencySupport field defined for emergency service over PLMN and extend the field description to cover SNPN case.

**Option2:** Introduce a new IE/field to indicate the support of IMS emergency service for SNPN.

From the proposals, 10 out of 11 companies (CATT, Qualcomm, Intel, Samsung, vivo, Nokia, ZTE, Ericsson, CMCC and Huawei) propose to introduce a new IE/field to indicate the support of IMS emergency service for SNPN, while only one company (OPPO) proposes to discuss whether to reuse legacy IE or define a new IE. Hence, a majority of companies support the following proposal:

1. : Introduce a new IE/field to indicate the support of IMS emergency service for SNPN.

### 2.1.2 Granularity of broadcasting parameter

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| **TDoc** | **Company** | **Proposals** |
| R2-2107031 | OPPO | Proposal 1: To enable limited service over SNPN, RAN2 to discuss and down select from the following two options:  Option1: Reuse the *ims-EmergencySupport* field defined for emergency service over PLMN and extend the field description to cover SNPN case.  Option2: Define a new parameter per cell to indicate whether the cell supports emergency service over SNPN.  Proposal 2: If Option2 is selected, the new parameter per cell to indicate whether the cell supports emergency service over SNPN should be included in SIB1 and upon UE receives this new parameter, UE AS should deliver it to the upper layer. |
| R2-2107325 | CATT | Proposal 2: The new indication for IMS emergency support is per SNPN. |
| R2-2107348 | Qualcomm | Observation 1: Per SA2 agreement and specification, the support for emergency services should be provided per SNPN.  Observation 2: It is possible that a cell may support emergency services for only a partial list of SNPN/PLMNs sharing this cell, which also requires the new indication to be per SNPN.  Proposal 1: Introduce an indicator for the support for emergency services per SNPN in SIB1. This can be placed in *PLMN-IdentityInfoList.* |
| R2-2107441 | Intel | Observation#0: Current specifications support a single bit in a cell to indicate IMS emergency call support for limited service state regardless of whether the cell is in network sharing scenario. There is no requirement for all PLMNs to supported emergency call and the UE NAS performs a trial and error attempt to attach to a PLMN that support IMS emergency call in limited service state.  Observation#1: Even though the SA2 TR indicate that the emergency call support is implying per SNPN, such indication is only needed per cell as like the current PLMN case regardless of whether the cell is in network sharing scenario.  Proposal#1: Emergency support for SNPN in limited service state is indicated per cell, similar to PLMN case when the cell is in network sharing scenario. |
| R2-2107752 | Samsung | Proposal 1: To support emergency call over IMS in SNPNs, RAN2 to introduce new flag in SIB1 to indicate the support for the emergency call feature by SNPNs in the cell. |
| R2-2107805 | Vivo | Proposal 6: A new cell-specific indicator is introduced in SIB1 to indicate the support for IMS emergency service of SNPN(s). If absent, IMS emergency call is not supported by the SNPN(s) in the cell for UEs in limited service mode. |
| R2-2107956 | Nokia | Proposal 3.1: Introduce a new IE that indicates the support of IMS emergency per SNPN.  Proposal 3.2: The new indicator for IMS emergency support in SNPN is included in SIB1. |
| R2-2108048 | ZTE | Proposal 3a: Confirm with SA2 that the *ims-EmergencySupport* indication shall be broadcast per SNPN in the system information. |
| R2-2108256 | Ericsson | Proposal 1: Introduce a new field indicating support for IMS Emergency for SNPNs. For network sharing scenarios each SNPN has a separate indication. Signalling details are FFS. |
| R2-2108499 | CMCC | Proposal 1: The indication “the cell supports Emergency Services over NG-RAN for UEs in limited service state” should be broadcasted per SNPN. |
| R2-2108614 | Huawei, HiSilicon | Proposal 2: Discuss whether the support of IMS emergency service for SNPN is configured:   * per cell w/o distinction of SNPN (i.e. the IMS emergency service provided by an SNPN cell is supported for any UEs in SNPN access mode); * per SNPN in a shared cell (i.e. meaning that the IMS emergency service provided by an SNPN can only be supported for its subscriber). |

*Rapporteur summary:*

From the proposals, 5/11 companies (CATT, Qualcomm, Nokia, Ericsson, CMCC) propose to broadcast the indication per SNPN, whereas 4/11 companies (OPPO, Intel, Samsung, vivo) propose to broadcast the indication per cell, 1/11 company (Huawei) proposes to discuss whether the indication is per cell or per SNPN, and 1/11 company (ZTE) proposes to confirm with SA2.

The reason to support of broadcasting the indication per SNPN:

1. **[Nokia, CMCC, Ericsson, Qualcomm]** According to the agreement and specification of SA, e.g. clause H.2 of TS 23.167, SA2 TR 23.700-07, section 5.30.2.4.1 of TS 23.501 CR:

clause H.2 of TS 23.167

*- If the broadcast indicator in an NR cell indicates that the cell provides access to SNPNs and that 5GC supports emergency services, the UE shall only register to the core network of the SNPN that indicates support for emergency services. If broadcast indicators indicate that one or more SNPNs and/or PLMNs support emergency services, then the UE initiates emergency services to either a SNPN or a PLMN according to UE implementation.*

SA2 TR 23.700-07

*if the NG-RAN is shared by more than one network, and the networks do not have the same support for Emergency Services, the broadcast indicator is related to those networks that supports Emergency Services.*

section 5.30.2.4.1 of Rel-17 23.501 CR

*Emergency services are supported in SNPN access mode. If the UE is in limited service state, the UE shall attempt to camp on an acceptable cell of any available SNPN supporting emergency calls (irrespective of SNPN ID or GIN) or on any available PLMN supporting emergency calls (irrespective of PLMN ID).*

1. **[Qualcomm]** per SNPN indication is necessary when RAN is shared between legacy (Rel-16) and Rel-17 SNPNs. Then, a per cell indication is not sufficient since a UE cannot determine whether its selected SNPN supports emergency services.
2. **[CATT]** Whether the new indication for emergency is per cell or per SNPN depends on whether a SNPN allows any UE in SNPN access mode to camp on it in limited state. SNPN, as a kind of private network, may not allow any UE in SNPN AM to initiate emergency on it.
3. **[ZTE]** If the network can indicate *ims-EmergencySupport* per SNPN, the UE can avoid unnecessary emergency registration attempt.
4. **[Ericsson]** the networks sharing the RAN can be intended for very different services. when having RAN sharing cases, it should therefore be possible to disable support of emergency services in SNPNs providing time-critical services to IoT devices.

The reason to support of broadcasting the indication per cell:

1. **[vivo, Intel]** Follow the design principle of PLMN (e.g. cell specific indication);
2. **[OPPO]** It’s not a common case that different SNPNs, which have different limited service strategy, would like to share the same RAN.

Since the views are not so convergent, it is proposed as follow:

1. : RAN2 to discuss whether the emergency support indication for SNPN is broadcast per SNPN or per cell.

### 2.1.3 Signalling details

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| **TDoc** | **Company** | **Proposals** |
| R2-2107348 | Qualcomm | Proposal 1: Introduce an indicator for the support for emergency services per SNPN in SIB1. This can be placed in *PLMN-IdentityInfoList.* |
| R2-2108499 | CMCC | Proposal 2: It is proposed to add a new IE inside NPN-IdentityList-r16 of SIB1, which indicates that the SNPN supports Emergency Services over NG-RAN for UEs in limited service state. |
| R2-2108256 | Ericsson | Proposal 1: Introduce a new field indicating support for IMS Emergency for SNPNs. For network sharing scenarios each SNPN has a separate indication. Signalling details are FFS. |
| R2-2107805 | vivo | Proposal 7: Change the field description of ims-EmergencySupport IE into “Indicates whether the PLMN(s) in the cell supports IMS emergency bearer services for UEs in limited service mode. If absent, IMS emergency call is not supported by the PLMN(s) in the cell for UEs in limited service mode”. |

*Rapporteur summary:*

(4/11) contributions have mentioned about the design of the signaling details. From the proposals, Qualcomm proposes the indicator can be placed in *PLMN-IdentityInfoList*, whereas CMCC suggests the indicator can be inside *NPN-IdentityList-r16*, Ericsson thinks the signaling details are FFS. In addition, vivo proposes to change the legacy field description of *ims-EmergencySupport* IE to clarify it is for PLMN.

1. : RAN2 to further discuss the signaling details of the emergency support indicator.

## 2.2 Availability of emergency services

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| **TDoc** | **Company** | **Proposals** |
| R2-2107031 | OPPO | Observation 1: In R16, if an NPN capable UE wants to get normal service in SNPN, the UE must be in SNPN access mode.  Proposal 4: R17 SNPN-capable UEs must be in SNPN access mode if these UEs want to get limited service in SNPN.  Proposal 5: R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs cannot camp on an SNPN cell supporting emergency services to obtain emergency services.  Proposal 6: R15 and R16 UEs are not allowed to camp on an SNPN cell supporting emergency services to obtain emergency services. |
| R2-2107348 | Qualcomm | Proposal 2: RAN2 to confirm that SNPN-capable UEs that are not in “SNPN Access Mode” and Rel-17 non-SNPN capable UEs can perform cell (re)-selection to an SNPN cell that supports emergency calls. |
| R2-2107805 | vivo | Proposal 3：In limited state, UE not operating in SNPN mode should camp on a cell of PLMN supporting emergency services to obtain emergency services.  Proposal 4：In limited state, UE operating in SNPN mode shall not camp on a cell of PLMN supporting emergency services to obtain emergency services.  Proposal 5: In Any cell selection state, UE in SNPN Access Mode shall attempt to find an acceptable cell of any SNPN to camp on. |
| R2-2107956 | Nokia | Proposal 2: Only Rel-17 UEs that are in SNPN Access Mode can select a SNPN to obtain emergency services. Supporting emergency services for other UEs in SNPN cells can be solved at deployment level in a similar way as emergency services are enabled from PNI-NPN cells in Rel-16. |
| R2-2108048 | ZTE | Proposal 1: UE operating in the SNPN mode can only access the SNPN for the emergency service.  Proposal 2: UE not operating in the SNPN mode can only access the PLMN for the emergency service. |
| R2-2108499 | CMCC | Proposal 3: Rel-17 SNPN-capable UEs not in SNPN Access Mode and non-SNPN capable UEs cannot camp on an acceptable SNPN cell supporting emergency services to obtain emergency services.  Proposal 4: All kinds of Rel-16 UEs cannot camp on an acceptable SNPN cell supporting emergency services to obtain emergency services.  Proposal 5: Rel-15 UEs cannot camp on an SNPN cell supporting emergency services to obtain emergency services. |
| R2-2108614 | Huawei, HiSilicon | Proposal 6: R16/R15 UEs are not allowed to camp on an SNPN cell to obtain emergency services only. |

*Rapporteur summary:*

Regarding the UE types in the SNPN network, the following types are taken into account during discussion:

Case 1: UEs in SNPN Access Mode

Case 2: SNPN-capable UEs that are not in SNPN Access Mode

Case 3: Non-SNPN capable UEsAnd during the email discussion [033][eNPN] at RAN2#113-e meeting (summary in R2-2102309 [12]), whether the Rel-16/Rel-17 UEs and the Rel-15 UEs can camp on SNPN cell to obtain emergency service had been discussed with the agreement confirmed in the online meeting “*R17 UEs in SNPN Access Mode can camp on an acceptable SNPN cell supporting emergency services to obtain emergency services.*”

From the proposals in this meeting, there are following opinions for different types of UEs:

1. **For the** **R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs:** 
   1. OPPO and CMCC definitely propose that they **cannot** camp on an SNPN cell supporting emergency services to obtain emergency services,
   2. Vivo andZTEpropose that UE not operating in the SNPN mode should camp on a PLMN cell for emergency services, and UE operating in the SNPN mode should not camp on a SNPN cell for emergency services, which implicitly express the view that UE not operating in the SNPN mode should not camp on an SNPN cell supporting emergency services to obtain emergency services as well from rapporteur’s perspective. And Nokia propose that only Rel-17 UEs that are in SNPN Access Mode can select a SNPN to obtain emergency services, which also implicitly express the view that R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs **cannot** camp on an SNPN cell supporting emergency services to obtain emergency services from rapporteur’s perspective.
   3. Only Qualcomm proposes that they **can** perform cell (re)-selection to an SNPN cell that supports emergency calls.
2. **For R16 and R15 UEs,** 
   1. OPPO, CMCC, Huawei, definitely propose that they are not allowed to camp on an SNPN cell supporting emergency services to obtain emergency services,
   2. vivo, ZTE, Nokia, the same proposal as bullet 1) with no clear description on R16 and R15 UEs.

Based on above, it seems the majority’s view is that for the R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs: UE not operating in the SNPN mode should not camp on an SNPN cell supporting emergency services to obtain emergency services. Hence, to reduce scope of discussion, it is suggested by rapporteur to attempt conclusion as follows:

1. : For the R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs: UE not operating in the SNPN mode should not camp on an SNPN cell supporting emergency services to obtain emergency services.
2. RAN2 to further discuss whether the following kinds of UEs are allowed to camp on an SNPN cell supporting emergency services to obtain emergency services.
3. R16 SNPN-capable UEs that are in SNPN Access Mode
4. R16 SNPN-capable UEs that are not in SNPN Access Mode
5. R16 Non-SNPN capable UEs
6. R15 UEs

## 2.4 Other issues

### 2.4.1 Support of eCall over IMS for SNPN

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| **TDoc** | **Company** | **Proposals** |
| R2-2107031 | OPPO | Proposal 3: Postpone the issue on whether eCall over IMS is supported in R17 SNPN cells before getting the feedback from other groups. |
| R2-2107752 | Samsung | Proposal 2: RAN2 to send an LS to SA2 to ask for clarification if eCall over IMS feature is to be supported in this release  Proposal 3: To support eCall over IMS feature in SNPN, RAN2 to introduce per SNPN based flag in SIB1 indicating the support of the feature. |
| R2-2107805 | vivo | Proposal 2: Confirm that there is no support for eCall over IMS for SNPN in this release. |
| R2-2107956 | Nokia | Proposal 3.3: RAN2 assumes that eCall over IMS is not supported in SNPNs. |
| R2-2108256 | Ericsson | Proposal 2: There is no need to support eCall over IMS for SNPNs. |
| R2-2108614 | Huawei, HiSilicon | Proposal 3: The eCall related indications is not broadcast for SNPNs. |

*Rapporteur summary:*

From the proposals, 4/6 companies (vivo, Nokia, Ericsson and Huawei) propose that eCall over IMS is not supported for SNPN in this release, 2/6 company (OPPO and Samsung) propose to check it with other group.

It’s worth noting that the contribution of Ericsson (R2-2108256) provides that reply LS from 5GAA WG4 which was recently received in last RP#92 in RP-210955 and said that there is no need to support eCall over IMS over SNPN. And the contribution of Huawei (R2-2108614) provides that R17 CR S2-2105205 in TS 23.167 v17.1.0 (2021-06) was approved to capture **that eCall is not supported for SNPNs**. Based on these, RAN2 should agree the following proposal to align with other group.

1. : eCall over IMS is not supported in SNPNs in Rel-17.

### 2.4.2 Support of PWS for SNPN

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| **TDoc** | **Company** | **Proposals** |
| R2-2107752 | Samsung | Proposal 4: RAN2 discusses whether to support PWS in eNPN. |
| R2-2107956 | Nokia | Proposal 1: Remove the limitation that emergency services and ETWS/CMAS are not supported in SNPN from clause 16.6.1 of TS 38.300.  Proposal 4.1: A UE in SNPN Access Mode can camp on an acceptable SNPN cell to receive ETWS-CMAS messages. |
| R2-2108256 | Ericsson | Proposal 3: RAN2 to discuss whether legacy PLMN mechanism apply for SNPNs which support PWS.  Observation 2: For Rel-16 UEs in SNPN Access Mode, emergency services and PWS notifications are not supported. |
| R2-2108614 | Huawei, HiSilicon | Proposal 4: RAN2 to clarify that the support of ETWS/CMAS is not a requirement for SNPN acceptable cell. |
| R2-2108337 | Qualcomm | SA#92e has agreed a CR to TS 22.261 (SP-210586) to add the support of PWS in stand-alone non-public networks (SNPN). This decision was communicated to RAN2 in R2-2106983, which requests the WGs to proceed with the corresponding normative work.  In TS 38.300, current text specifically states that ETWS and CMAS are not supported over SNPN. This should be removed to to align with SA decision.   |  | | --- | | 16.6 Stand-Alone NPN16.6.1 General A SNPN is a network deployed for non-public use which does not rely on network functions provided by a PLMN (see clause 4.8). An SNPN is identified by a PLMN ID and NID (see clause 8.2) broadcast in SIB1.  An SNPN-capable UE supports the SNPN access mode. When the UE is set to operate in SNPN access mode, the UE only selects and registers with SNPNs. When the UE is not set to operate in SNPN access mode, the UE performs normal PLMN selection procedures.  Emergency services are not supported in SNPN.  NR-NR Dual Connectivity within a single SNPN is supported. | |
| R2-2108342 | Qualcomm | [DRAFT]LS on introduction of PWS support over SNPN, response to R2-2106983/SP-210584 Reply LS on support of PWS over NPN |

*Rapporteur summary:*

From the proposals, 2/5 companies (Samsung, Ericsson) propose to discuss whether to support PWS for SNPN and 1/5 company (Huawei) proposes to not support ETWS/CMAS. 2/5 company (Nokia and Qualcomm) proposes to support ETWS/CMAS, where in the [13], it is mentioned that SA has approved the attached WID and CR (to 22.261), introducing service requirements to support PWS over NPN in Rel-17 according to [15](Reply LS on support of PWS over NPN) and asking the relevant stage-2/3 WGs to proceed with the corresponding normative work, so RAN2 should agree the following proposal to align with SA decision.

1. : PWS is supported in SNPNs in Rel-17.

### 2.4.3 Impacts on IDLE/INACTIVE mobility

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| **TDoc** | **Company** | **Proposals** |
| R2-2107348 | Qualcomm | Observation 3: SA2 agreement requires that an SNPN cell should be an acceptable cell if it supports emergency calls.  Proposal 3: An SNPN cell is considered an “acceptable cell” if it supports emergency calls.  Proposal 4: AS will indicate to NAS which SNPNs support emergency services. |
| R2-2107956 | Nokia | Proposal 4.1: A UE in SNPN Access Mode can camp on an acceptable SNPN cell to receive ETWS-CMAS messages.  Proposal 4.2: A UE in SNPN Access Mode is in "Any Cell Selection state" (clause 5.2.7 of TS 38.304) shall attempt to find an acceptable cell of any SNPN.  Proposal 4.3: Extend clause 5.2.8 ("Camped on Any Cell state") of TS 38.304 with the following points  a) If the UE is in SNPN Access Mode and the UE supports voice services, then the UE shall attempt to find an acceptable cell of any SNPN that supports emergency sessions.  b) If the UE in SNPN Access Mode, then the UE shall attempt to find an acceptable cell of any SNPN that supports CMAS/ETWS. |
| R2-2108614 | Huawei, HiSilicon | Proposal 5: Same as the PLMN case, an SNPN UE supporting voice services should perform cell selection/reselection to an acceptable cell that can support emergency call for SNPN, if the current cell cannot support IMS emergency calls and no suitable cell is found. |

*Rapporteur summary:*

From the proposals, Qualcomm proposes to extend the acceptable cell definition “An SNPN cell is considered an “acceptable cell” if it supports emergency calls” and interaction between AS and NAS, Nokia and Huawei propose to extend the description of clause 5.2.8 ("Camped on Any Cell state") in TS 38.304.

1. : RAN2 postpone to discuss the definition of acceptable cell and the impacts on "Any Cell Selection state" and "Camped on Any Cell state" of TS 38.304 before having an agreement on support of PWS for SNPN.

### 2.4.4 Others

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| **TDoc** | **Company** | **Proposals** |
| R2-2107031 | OPPO | Proposal 7: Postpone the early implementation discussion for R17 NPN before RAN2 completes the normative work for R17 NPN.  Proposal 8: Send a LS to SA2 and cc RAN3/CT1/SA1 once RAN2 made the decision for limited service over SNPN. |
| R2-2107805 | vivo | Proposal 1: The Support of IMS voice for SNPN has no RAN2 impact. |

*Rapporteur summary:*

From the proposals, OPPO proposes to postpone the early implementation discussion, vivo proposes the support of IMS voice for SNPN has no RAN2 impact.

1. : RAN2 postpone the early implementation discussion and the impacts on support of IMS voice for SNPN.

# Conclusions

Based on the discussion in the previous sections, the following Cat-A proposals were identified:

1. : Introduce a new IE/field to indicate the support of IMS emergency service for SNPN.
2. : For the R17 SNPN-capable UEs that are not in SNPN Access Mode and R17 Non-SNPN capable UEs:

* UE not operating in the SNPN mode should not camp on an SNPN cell supporting emergency services to obtain emergency services.

1. : eCall over IMS is not supported in SNPNs in Rel-17.
2. : PWS is supported in SNPNs in Rel-17.

Based on the discussion in the previous sections, the following Cat-B proposals were identified:

1. : RAN2 to discuss whether the emergency support indication for SNPN is broadcast per SNPN or per cell.
2. : RAN2 to further discuss whether the following kinds of UEs are allowed to camp on an SNPN cell supporting emergency services to obtain emergency services.

a) R16 SNPN-capable UEs that are in SNPN Access Mode

b) R16 SNPN-capable UEs that are not in SNPN Access Mode

c) R16 Non-SNPN capable UEs

d) R15 UEs

Based on the discussion in the previous sections, the following Cat-C proposals were identified:

1. : RAN2 to further discuss the signaling details of the emergency support indicator.
2. : RAN2 postpone to discuss the definition of acceptable cell and the impacts on "Any Cell Selection state" and "Camped on Any Cell state" of TS 38.304 before having an agreement on support of PWS for SNPN.
3. : RAN2 postpone the early implementation discussion and the impacts on support of IMS voice for SNPN.

# References

1. R2-2107031 Support of IMS Voice and Emergency Services for SNPN OPPO discussion
2. R2-2107325 Open Issues on Support of IMS Emergency for SNPN CATT discussion
3. R2-2107348 Support of emergency services for SNPN Qualcomm Incorporated discussion
4. R2-2107441 Support of IMS emergency call for SNPN Intel Corporation discussion
5. R2-2107752 On Supporting Emergency services in SNPNs Samsung R&D Institute India discussion
6. R2-2107805 Discussion on support of IMS voice and emergency services for SNPN vivo discussion
7. R2-2107956 Considerations for PWS and IMS emergency services in SNPNs Nokia, Nokia Shanghai Bell discussion
8. R2-2108048 Consideration on the emergency services for SNPN ZTE Corporation, Sanechips discussion
9. R2-2108256 Support of emergency services for SNPNs Ericsson discussion
10. R2-2108499 Support of emergency services for SNPN CMCC discussion
11. R2-2108614 Support of IMS voice and emergency services for SNPN Huawei, HiSilicon discussion
12. R2-2102309, Summary for Offline [033][eNPN] IMS voice and emergency services for SNPN, Huawei
13. R2-2108337 Removal of ETWS/CMAS restriction for SNPN Qualcomm Incorporated
14. R2-2108342 [DRAFT] LS on introduction of PWS support over SNPN Qualcomm Incorporated
15. R2-2106983 Reply LS on support of PWS over NPN (SP-210584; contact: Qualcomm) SA LS in Rel-17 To:SA1, SA3, CT1, RAN2, RAN3 Cc:SA2, CT, RAN